

The Environmental Commitment to Protect Alaska's North Slope

**The Alaska Department of Environmental Conservation's
2nd annual report**



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It has been just over two years since the State of Alaska, BP, and Phillips signed the Charter for Development of the Alaskan North Slope. Of particular note to the Department of Environmental Conservation are the environmental commitments to address existing problems and prevent new ones from arising in the future. The course we embarked upon that day is a good one for Alaska.

The environmental commitments contained in the Charter are unprecedented worldwide, but our continued efforts are critical in ensuring their fulfillment. This annual report serves to inform Alaskans of our progress in that endeavor.

A year ago, I reported that progress was good. Today, looking back at year two, I believe that we are still on schedule in meeting the Charter's goals. Here are some of the highlights of 2001.

- *The first double-hulled vessel, Phillips' Polar Endeavour, sailed into Prince William Sound this summer. This tanker features enhanced safety-related items, including twin propellers, twin rudders and two independent steering systems.*
- *Phillips and BP cleaned up and properly disposed of almost 1,000 hazardous abandoned drums.*
- *Cleanups of eight abandoned contaminated sites on the North Slope are well underway.*



DEC Commissioner Michele Brown and Governor Tony Knowles.

2001 Charter Accomplishments

- ☐ *Delivery of the first new double-hulled tanker*
- ☐ *983 hazardous drums recovered and cleaned up*
- ☐ *\$17 million spent to clean-up hazardous waste from reserve pits*

I commend BP and Phillips for these milestones, even as I stress the need for continued diligence by both industry and the state.

I challenge Phillips and BP to fulfill the promise of the Charter by maintaining a high standard in Arctic oil spill research and development and by continuing to strengthen corrosion monitoring and structural integrity programs. We must continue to identify and correct



deficiencies, and remain vigilant to ensure effective spill prevention.

We are proud of this agreement and the message it sends about the importance of environmental protection to Alaskans. I hope you will join me in reviewing the Second Annual Report on the Charter for Development of the Alaskan North Slope.

Michele Brown

Commissioner
Alaska Department of Environmental Conservation



Signing the Charter for Development of the Alaskan North Slope were: BP Deputy Chief Executive Officer Rodney Chase, Governor Tony Knowles, and Phillips Chairman and CEO Jim Mulva.

What is the Charter for Development of the North Slope?

The Charter is an agreement between the State of Alaska, BP Exploration (Alaska) Inc., and ARCO, which led to State of Alaska support of a merger between BP and ARCO. At the insistence of Alaska Governor Tony Knowles, the Charter included significant environmental provisions to advance environmental protection, improve environmental performance, increase on-site safety, develop improved technology, remedy existing environmental challenges, and address emerging ones.

As set forth in the Charter, ARCO and BP agreed to sell a pre-determined percentage of their Alaska interests to a third “qualified company” prior to their merger in order to ensure continued competition. Phillips Petroleum Company purchased the stock of ARCO Alaska, Inc. and, with BP, assumed responsibility for fulfilling the Charter obligations. The following is a summary of the provisions and status of these commitments for 2001.



The Environmental Commitment to Protect Alaska's North Slope

Increased Funding of Arctic Oil Spill Research and Development, and Continued Support for Dedicated North Slope Spill Response Resources

Commitment: BP and Phillips will support and fund an independent professional North Slope oil spill response organization, such as Alaska Clean Seas, and encourage the participation of all North Slope producers

in this organization. BP and Phillips further agreed to support an annual average expenditure of \$200,000 to fund Arctic oil spill response research and development projects approved by DEC for ten years following the merger. Supporting an independent response organization and investing in research and development will ensure continuous improvement in Alaska's Arctic oil spill response capability.



A prototype skimming system called Mechanical Oil Recovery in Ice Infested Waters (MORICE) was tested for mechanical oil recovery in ice-infested waters

- Photo by DEC

Status: In 2001, BP and Phillips supported a 19% increase for Alaska Clean Seas' operating budget, bringing the yearly total to \$14,500,000. Alaska Clean Seas increased staffing 26% to 68 full-time employees and maintains call-out capability for 293 active North Slope spill response team members.

Arctic oil spill research and development projects in 2001 included additional testing of the prototype skimming system for mechanical oil recovery in ice-infested waters (MORICE), development of a Beaufort Sea nearshore oil spill trajectory model (GNOME), development of a three-dimensional well blowout model, and a field manual for evaluating the safety of response activities on sea ice. Research identified for 2002 includes the final phase of testing the MORICE skimming system, continued testing of reliable methods to pump cold, highly viscous fluids that could result from an offshore oil spill on the North Slope, and expansion of the GNOME oil spill trajectory model eastward to Camden Bay.



Improved Tanker Safety through Accelerated Transition to Double-Hulled Vessels

Commitment: BP and Phillips will purchase new double-hulled tankers and replace other Trans-Alaska Pipeline System single-hulled vessels to meet their combined Alaskan North Slope fleet requirements an average of one year earlier than required by the Oil Pollution Act of 1990. This



Phillips' Polar Endeavour crude oil tanker sailed into Prince William Sound on July 11, 2001, marking delivery of the first new double-hulled vessel. Phillips will complete building and delivery of four additional "Millennium Class" tankers. BP has placed orders for four "Alaska Class" double-hull tankers, and the first is scheduled to begin service in late 2003. The entire fleet will be double-hulled by 2007.

- Photo by DEC

means that the entire combined fleet will be double-hulled by 2007. All replacement vessels must have safety improvements equivalent or better than the new "Millennium Class," which include double-hulls and redundant power plants, rudders, propellers, and steering mechanisms. The vessels will also utilize new state-of-the-art navigation electronics and control systems that automatically trigger warnings if the ship is off course. Additionally, BP and Phillips committed to support continuation of the Prince William Sound ship escort response system at current or better levels of effectiveness.

BP and Phillips committed to have their vessel operators conduct regular performance reviews with DEC of vessel management and operating practices. The commitment for new safety enhanced double-hulled tankers, together with improved vessel management practices, will significantly reduce the risk of an oil spill into Alaska's pristine waters.

Status: Phillips' *Polar Endeavour* tanker sailed into Prince William Sound on July 11, 2001, marking delivery of the first new double-hulled vessel. Phillips is under contract to complete building and delivery of four additional "Millennium Class" tankers to replace the single-hulled tankers now used in its tanker fleet. Phillips' second double-hulled tanker will



The Environmental Commitment to Protect Alaska's North Slope

begin operations later this year and the others will be delivered at the rate of one per year in 2003, 2004, and 2005.

BP has placed orders for four "Alaska Class" double-hull tankers to replace the single-hull tankers in the BP fleet operated by the Alaska Tanker Company. The first BP tanker is scheduled to begin service in late 2003, with the other three following in mid-2004, 2005, and 2006. In addition to the double-hull design, the "Alaska Class" and "Millennium Class" vessels feature enhanced safety-related attributes, including twin propellers, twin rudders, two independent steering systems, improved navigation course tracking, collision alarm, engine room monitoring, cargo and ballast monitoring, and state of the art fire and safety system electronics. The conversion of the tanker fleet to double-hulled vessels is on schedule to be completed by mid-2007.

In 2001, DEC participated in International Safety Management/International Standards Organization 9002 and 14001 certification reviews of BP's and Phillips' tanker operations. These reviews included assessment of the management and operation systems, including tanker safety and operations, staff training and qualifications, vessel maintenance, reporting systems, and management procedures. DEC staff also attended tanker operations training in 2001.

Pipeline Corrosion Monitoring

Commitment: BP and Phillips, in consultation with DEC, will develop a performance management program for corrosion monitoring and related practices to prevent leaks and structural failures in the North Slope pipelines operated by each company. This program includes twice per year consultation sessions with DEC to routinely review and report on current



Part of the overall corrosion monitoring system is the use of "smart pigs" in the larger diameter production pipelines on the North Slope. Smart pigs travel inside the pipe, measuring wall thickness for signs of corrosion.

- Photo by the National Transportation Safety Board



"Tangential radiography testing" is part of the corrosion monitoring effort. The wheeled device above is used on long spans of pipe to look under insulation for a loss of wall thickness. Other techniques are used to detect corrosion, which can occur from multiple sources and vary according to the field.

- Photo by BP

and projected monitoring, maintenance, and inspection practices

Status: BP and Phillips conducted an extensive corrosion control and management program, which included monitoring, line maintenance, inspection, and repairs to assess or to remedy corrosion and other structural problems related to North Slope pipelines. DEC retained an independent technical expert to review BP's and Phillips' pipeline corrosion programs, recommend improvements to their content and scope, and better define reporting consistency, performance measures, production equipment, and leak statistics.

DEC's review concluded that overall pipeline corrosion rates have been steadily decreasing since 1993 and were at their lowest levels in 12 years. In 2000, internal corrosion rates increased slightly in some production lines and produced water injection

systems, but the companies have taken corrective steps and anticipate improvements in the coming year. The review also concluded that external corrosion is a significant risk to pipeline integrity and additional resources may be needed to control it. As a result of the review, DEC is working with BP and Phillips to develop uniform performance measures for corrosion information, including data collection, equipment service types, leak/repair statistics, smart pigging results, below grade pipeline monitoring, and other pipeline structural matters.

Increased rates of internal corrosion were noted for certain well and injection lines. One key area of risk identified is external corrosion at pipeline weld-pack locations, where pipe segments are joined together. These locations are wrapped with field-applied insulation that is susceptible to moisture entry, increasing the risk of corrosion. Both BP and Phillips have put a priority on inspecting weld-pack areas that may be at highest risk or are located where greater environmental damage from a leak would occur. To date, BP has inspected 70,000 of its 185,000 weld-packs at Greater Prudhoe Bay and Phillips has inspected 67,000 of its more than 101,000 weld locations. Based upon the observed rate of corrosion damage, BP has committed to more than double its rate of



The Environmental Commitment to Protect Alaska's North Slope



East Kuparuk #1, on the North Slope, is an "orphan" site, a contaminated area for which the responsible entity is unknown. This summer BP cleaned over nineteen hundred drums collected from eight orphan sites, and half were crushed and removed. Fourteen such sites are slated for cleanup.

- Photo by BP



May Creek is another "orphan site" on the North Slope. Four 3,000 gallon above-ground fuel storage tanks were emptied and dismantled for removal. 102 old drums were also removed.

- Photo by BP

inspections in these areas for 2002. Phillips, which is ahead of schedule for completing its weld-pack inspection program, will also double the inspection rate for below-grade weld-packs and complete an initial screening of all significant road crossings by the end of 2002. BP and Phillips estimated the combined cost of their corrosion programs for 2001 at \$55 million.

Cleanup of Abandoned Contaminated Sites and Empty Barrels

Commitment: By 2007, BP and Phillips committed to spend at least \$10 million to assess and clean up abandoned North Slope sites suspected of hazardous substance contamination. BP, Phillips, and DEC initially identified 14 abandoned contaminated sites for assessment and clean up. Additionally, BP and Phillips agreed to locate, collect, clean, and dispose of abandoned empty barrels found on the North Slope. These "orphan" contaminated sites or abandoned barrels were created by individuals or businesses that are either unknown or are unable to conduct any cleanup. Without this Charter commitment, the State of Alaska would have to assume responsibility for cleaning these sites using public funds as available, likely resulting in a delayed cleanup schedule and costing Alaskans millions of dollars.

Status: BP and DEC set priorities for assessment and cleanup of the 14 identified abandoned contaminated sites, based upon the type of hazards



present, risk posed, cleanup requirements, and cost estimates. Visual inspections and inventories have been completed at all 14 selected sites. Liquid and hazardous wastes were removed from eight of these sites. In 2001, three additional abandoned sites were identified for cleanup using Charter funding. BP and Phillips spent approximately \$2.2 million to date for abandoned site fieldwork.

A total of 1,963 abandoned hazardous drums at six locations were inventoried and cleaned. 983 drums have been properly removed from 5 sites.

Accelerated Cleanup of Existing BP and Phillips Contaminated Sites and Inactive Reserve Pits

Commitment: The Charter requires that the highest priority sites be substantially completed by the end of 2005, and the remaining sites finished by 2007. In addition, 87 inactive production reserve pits must be closed and cleaned by 2007 and 84 inactive exploration pits must be closed and cleaned after work on the production pits is finished. DEC, BP, and Phillips are currently developing a schedule for the exploration pits based on site risk and disposal processing rates. This commitment acceler-

ates the rate of cleanup and sets a schedule for cleaning up and closing longstanding Arctic reserve pits. BP and Phillips are also committed to fully assess and clean up 41 North Slope contaminated sites used or operated by the companies by 2007.



Old muds, used for lubricant during drilling, may contain oil and other hazardous materials. Prior to 1993, the oil industry would dispose of these muds in reserve pits, whereas now they are reinjected into wells. BP and Phillips have submitted cleanup and closure plans for 40 sites. DEC has approved 25 of these plans to date.

- Photo by BP

Status: In 2001, a total of 540,000 cubic yards of drilling wastes were excavated and responsibly disposed of at a cost of \$17 million to BP and Phillips. BP and Phillips completed submitted cleanup and closure plans for 40 of the 87 inactive production reserve pits. Of these, 25 cleanups were completed. Closure and cleanup plans were submitted for 37 of the 84 inactive exploration reserve pits. Of these, 25 cleanups were completed. DEC, BP, and Phillips are currently drafting a schedule for cleanup of exploration pits based upon site risk. Last year, BP and Phillips began a formal site assessment of the 41 contaminated sites scheduled to be cleaned up by 2007.



The Environmental Commitment to Protect Alaska's North Slope

BP and Phillips environmental commitments

Charter Commitment	Provisions	2001 Status
Cleanup of Abandoned Sites	BP to take leadership role in cleanup of North Slope "orphan sites" and spend at least \$10,000,000. Site assessments and cleanup will be completed by 2007.	<p>Site assessments have been completed at all 14 identified sites.</p> <p>8 of 14 sites have had liquid and hazardous wastes removed.</p> <p>\$2,200,000 spent to date.</p>
Cleanup of Abandoned Drums	BP and Phillips to require seismic and exploration contractors to collect and deliver abandoned drums.	<p>1,963 drums have been inventoried and cleaned at 6 sites. 983 drums have been removed from 5 sites.</p> <p>300 additional drums have been identified for future removal.</p>
Cleanup of BP and Phillips Contaminated Sites	<p>BP and Phillips to assess and clean up 41 contaminated sites to standards approved by DEC.</p> <p>All sites to be completed by year-end 2007.</p>	BP and Phillips investigated the status of all 41 contaminated sites.
Closure of Inactive Reserve Pits	<p>BP and Phillips to clean up and close inactive production reserve pits within designated time period or by the end of 2007.</p> <p>BP and Phillips to cleanup and close inactive exploration reserve pits according to schedule established by risk ranking.</p>	<p>Combined total of 87 inactive production reserve pits identified, 25 cleaned up and closed, 15 cleanup and closure plans received by DEC.</p> <p>Combined total of 84 inactive exploration reserve pits identified, 25 cleaned up and closed, 12 cleanup and closure plans received by DEC.</p> <p>A total of 540,000 cubic yards of drilling wastes were excavated and responsibly disposed of at a cost of \$17 million to BP and Phillips.</p>
North Slope Spill Response	<p>BP and Phillips to support independent professional spill response organization.</p> <p>BP and Phillips to support Arctic spill response research and development at an average annual level of not less than \$200,000 during Charter's 10-year life (\$2,000,000).</p>	<p>Continued support for Alaska Clean Seas (ACS) response organization.</p> <p>ACS budget increased 19% to \$14,500 million and staff increased 26% to 68 employees.</p> <p>\$350,000 yearly average spent to date on Arctic spill response research and development.</p>



2001 Progress report

Charter Commitment	Provisions	2001 Status
Corrosion Monitoring	In consultation with DEC, BP and Phillips to develop corrosion monitoring performance management program for North Slope pipelines.	<p>DEC retained an independent technical expert to review BP's and Phillips' corrosion program.</p> <p>One area of closer inspection was pipeline weld-pack corrosion under insulation:</p> <ul style="list-style-type: none"> <input type="checkbox"/> BP inspected 70,000 of its 185,000 weld-pack locations at Greater Prudhoe Bay. <input type="checkbox"/> Phillips inspected 67,000 of the more than 101,000 weld locations. <input type="checkbox"/> DEC, BP, and Phillips identified weld-pack locations for priority repair/monitoring. <p>The companies estimate \$55 million spent in 2001 to conduct an extensive corrosion control and management program.</p>
Conversion to Double-Hulled Tankers	BP and Phillips will purchase new double-hulled tankers and replace other Trans-Alaska Pipeline System single-hulled vessels an average of one year earlier than required by the Oil Pollution Act of 1990. This means that the entire combined fleet will be double-hulled by 2007.	<p>Phillips' <i>Polar Endeavour</i> tanker sailed into Prince William Sound on July 11, 2001, marking delivery of the first new double-hulled vessel.</p> <p>Eight additional state-of-the-art double-hulled tankers are on order.</p>
Additional Expenditures	BP and Phillips to spend up to \$500,000 each year during the 10-year Charter period as requested by DEC's Commissioner for additional orphan site assessment and cleanup, Arctic spill response research and development, or expert advisors to DEC regarding pipeline corrosion monitoring or other pipeline structural issues.	<p>BP and Phillips spent an additional \$130,000 to fund:</p> <ul style="list-style-type: none"> <input type="checkbox"/> DEC participation in the mechanical oil recovery in ice infested water (MORICE) testing. <input type="checkbox"/> DEC review of corrosion monitoring practices and Arctic spill response research & development. <input type="checkbox"/> DEC contractor support to administer spill research and development and corrosion monitoring sections of the Charter.



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Photo: Linda Brubaker

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